

CLAIMS

1. An RF circuit component comprising:

a substrate with a principal surface; and

a plurality of resonators, including a first resonator,

5 a second resonator and a third resonator, which are arranged on the principal surface of the substrate so as to be coupled in series together,

wherein each of the first, second and third resonators is made of a conductor supported on the substrate, and

10 wherein the resonant modes of each of the first, second and third resonators include two fundamental resonant modes that oscillate perpendicularly to each other within a plane that is defined parallel to the principal surface of the substrate, and

15 wherein the second resonator is arranged between the first and third resonators, and the oscillation direction of one of the fundamental resonant modes of the second resonator defines an angle greater than 0 degrees but smaller than 90 degrees with respect to that of its associated fundamental
20 resonant mode of the first resonator and/or the third

resonator.

2. The RF circuit component of claim 1, wherein the second resonator is made of a conductor, which has an
5 elliptical cross section when taken parallel to the principal surface, and

wherein the oscillation directions of the two fundamental resonant modes of the second resonator are respectively parallel to the major axis and minor axis of the
10 elliptical cross section.

3. The RF circuit component of claim 1, wherein each of the first and third resonators is made of a conductor, which has an elliptical cross section when taken parallel to the
15 principal surface, and

wherein the oscillation directions of the two fundamental resonant modes in each of the first and third resonators are respectively parallel to the major axis and minor axis of the elliptical cross section.

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4. The RF circuit component of claim 1, further comprising an input coupling terminal for inputting an RF signal to one of the resonators and an output coupling terminal for outputting the RF signal from another one of the
5 resonators.

5. The RF circuit component of claim 1, wherein each of the two resonators coupled to the input and output coupling terminals, respectively, is made of a conductor, which has
10 the shape of an ellipse when taken parallel to the principal surface, and

wherein the input coupling terminal is coupled to the resonator at a point away from an intersection between the major or minor axis of the ellipse and the ellipse itself,
15 and the output coupling terminal is coupled to the resonator at a point away from an intersection between the major or minor axis of the ellipse and the ellipse itself.

6. The RF circuit component of claim 1, wherein the
20 first resonator and the input coupling terminal are directly

connected together and the third resonator and the output coupling terminal are directly connected together.

7. The RF circuit component of claim 1, further
5 comprising a metallic housing that is arranged so as to surround the substrate,

wherein a screw is provided so as to go through the metallic housing.

10 8. The RF circuit component of claim 1, wherein the conductor is made of a superconductor material.